

Claims

What is claimed is:

- 1 1. A method for providing location-specific responses in an
2 automated voice response system, said method comprising the steps of:
3 receiving a microphone signal from each of a plurality of microphones;
4 identifying a spoken command utilizing voice recognition responsive
5 to each said received microphone signal;
6 identifying a sound location vector responsive to each said identified
7 spoken command; and
8 providing a response command based upon said sound location
9 vector.

- 1 2. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 1 wherein the step of
3 receiving a microphone signal from each of a plurality of microphones
4 includes the steps of digitizing said microphone signal from each of a
5 plurality of microphones; and adding a clock signal to each said digitized
6 microphone signal.

- 1 3. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 2 wherein the step of
3 digitizing said microphone signal from each of a plurality of microphones
4 includes the step of applying an analog audio signal from each of a plurality
5 of microphones to a respective analog-to-digital converter (ADC) coupled to
6 each of said plurality of microphones.

- 1 4. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 3 wherein the step of
3 adding a clock signal to each said digitized microphone signal includes the
4 step of applying a digitized audio signal from said respective analog-to-
5 digital converter (ADC) to a clock adder for adding said clock signal.

1 5. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 1 wherein the step of
3 identifying said spoken command utilizing said voice recognition responsive
4 to said received microphone signal includes the steps of identifying a
5 predefined first command word of predetermined spoken commands.

1 6. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 1 wherein the step of
3 identifying said spoken command utilizing said voice recognition unit
4 responsive to said received microphone signal includes the steps of
5 identifying said received microphone signal for a predetermined person and
6 identifying said spoken commands only from said identified predetermined
7 person.

1 7. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 1 wherein the step of
3 identifying said spoken command utilizing said voice recognition responsive
4 to said received microphone signal includes the steps of storing a command
5 start time T_0 , a command length T_c for said identified spoken command and
6 a channel number corresponding to one of said plurality of microphones
7 utilizing said voice recognition.

1 8. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 7 wherein the step of
3 identifying said sound location vector responsive to said identified spoken
4 command includes the steps of performing digital signal analysis of said
5 identified spoken command utilizing said command start time T_0 , said
6 command length T_c for said identified spoken command and said channel
7 number.

1 9. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 8 wherein the step of
3 identifying said sound location vector responsive to said identified spoken
4 command includes the steps of performing digital signal analysis of each
5 said identified spoken command for each said stored channel number.

1 10. A method for providing location-specific responses in an
2 automated voice response system as recited in claim 1 wherein the step of
3 providing said response command based upon said sound location vector
4 includes the step of determining an intent of said identified spoken command
5 utilizing said sound location vector.

1 11. A computer program product for providing location-specific
2 responses in an automated voice response system including a processor,
3 said computer program product including a plurality of computer executable
4 instructions stored on a computer readable medium, wherein said
5 instructions, when executed by a processor, cause the processor to perform
6 the steps of:

- 7 receiving a digitized audio signal from each of a plurality of
8 microphones;
- 9 utilizing voice recognition to identify a spoken command responsive to
10 said received digitized microphone audio signal from each of a plurality of
11 microphones;
- 12 identifying a sound location vector responsive to each identified
13 spoken command; and
- 14 providing a response command based upon said sound location
15 vector.

1 12. A computer program product for providing location-specific
2 responses in an automated voice response system as recited in claim 11
3 wherein said instructions, when executed by said processor, further cause
4 the processor to perform the steps of storing a command start time T_0 , a
5 command length T_c for said identified spoken command and a channel
6 number corresponding to an identified one of said plurality of microphones
7 for each identified spoken command utilizing said voice recognition.

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1 13. A computer program product for providing location-specific
2 responses in an automated voice response system as recited in claim 12
3 wherein said instructions, when executed by said processor, further cause
4 the processor to perform the steps of performing digital signal analysis for
5 each identified spoken command utilizing said stored command start time T_0 ,
6 command length T_c for said identified spoken command and said channel
7 number of each identified one said plurality of microphones for each
8 identified spoken command for identifying said sound location vector.

1 14. A computer program product for providing location-specific
2 responses in an automated voice response system as recited in claim 12
3 wherein said instructions, when executed by said processor, cause the
4 processor to perform the steps of selecting one of a plurality of predefined
5 response commands utilizing said sound location vector to provide said
6 response command based upon said sound location vector.

1 15. Apparatus for providing location-specific responses in an
2 automated voice response system comprising:
3 a plurality of microphones located within a defined environment for
4 receiving a sound within said environment and each of said plurality of
5 microphones providing a microphone signal;
6 a processor for identifying spoken commands responsive to each said
7 microphone signal and for identifying a locational origin of said spoken
8 command within said environment; and
9 said processor for providing a response command based upon said
10 identified locational origin of said spoken command within said environment.

1 16. Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 15 includes a
3 respective analog-to-digital converter coupled to each of said plurality of
4 microphones, each respective analog-to-digital converter receiving an
5 analog audio signal and providing a digitized audio signal.

1 17. Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 16 includes a clock
3 adder coupled to each said respective analog-to-digital converter for adding
4 a clock signal to each said digitized audio signal.

1 18. Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 17 includes a
3 respective voice recognition unit receiving each said digitized audio signal
4 with said added clock signal; said voice recognition unit identifying said
5 spoken commands; said processor retrieving said identified spoken
6 commands from said respective voice recognition unit.

1 19. Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 18 includes a digital
3 analysis unit utilizing said identified spoken commands from said respective
4 voice recognition unit and identifying said locational origin of said spoken
5 command within said environment; digital analysis unit applying said
6 identified locational origin of said spoken command to said processor.

1 20. Apparatus for providing location-specific responses in an
2 automated voice response system as recited in claim 19 wherein said
3 processor selecting one of a plurality of predefined response commands
4 utilizing said spoken command locational origin to provide said response
5 command.